

1. - 12. (Canceled)

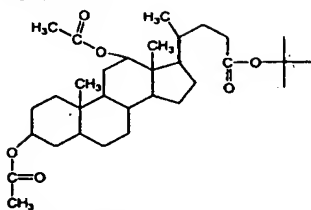
(a) forming a first photoresist pattern on a substrate using a photoresist composition comprising a photoresist polymer, a photo acid generator, an organic solvent and an additive of following Formula 1 selected from the group consisting of compounds of following Formulas 3 to 7:

The chemical structure shows a steroid nucleus with several substituents. At the C-13 position, there is a side chain consisting of a methyl group (H₃C), a methylene group (CH₂), and a carbonyl group (C=O) bonded to an OR' group. A substituent 'A' is attached to the C-14 position. At the C-10 position, there is a methyl group (CH₃). At the C-3 position, there is an RO group. At the C-17 position, there is a substituent 'B'.

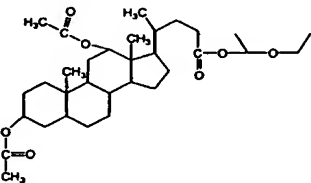
~~B is H or OR", and~~

R, R', R'' and R''' are independently selected from the group consisting of C1-C10 alkyl, C1-C10 alkoxyalkyl, C1-C10 alkylcarbonyl, and C1-C10 alkyl containing at least one hydroxyl group (-OH);

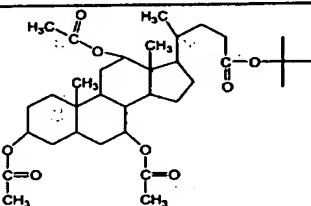
Formula 4



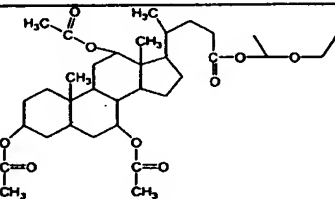
Formula 5



Formula 6



Formula 7



and

(b) producing performing a resist flow process onto the first photoresist pattern to obtain a second photoresist pattern from said first photoresist pattern using a resist flow process.

14. (Currently Amended) The resist flow process according to claim 13, wherein said step (a) further comprises the steps of:

- (i) coating said photoresist composition on said substrate to form a photoresist film, wherein said substrate is a semiconductor device; and
- (ii) producing said first photoresist pattern using a lithography process.

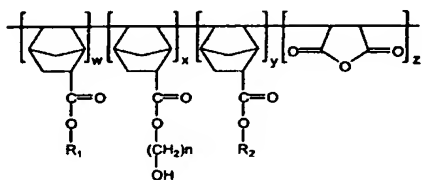
15. (Previously Presented) The resist flow process according to claim 13, wherein said first and second photoresist pattern comprises a contact hole pattern.

16. (Currently Amended) The resist flow process according to claim 13, wherein said resist flow process comprises heating said first photoresist pattern upto Tg of the photoresist to temperature in the range of from about 120 to about 190°C.

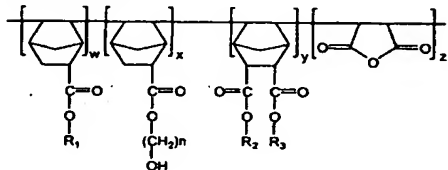
17. - 21. (Canceled)

22. (Currently Amended) The resist flow process according to claim 13, wherein said photoresist polymer is a compound of following Formulas 8 or 9:

Formula 8



Formula 9



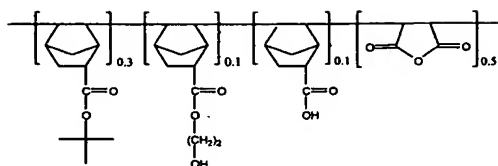
wherein, R₁ is ~~and~~ an acid labile protecting group;

R₂ is hydrogen; R₃ is ~~hydrogen~~, selected from the group consisting of hydrogen, C₁-C₁₀ alkyl, C₁-C₁₀ alkoxyalkyl, and C₁-C₁₀ alkyl containing at least one hydroxyl group (-OH);

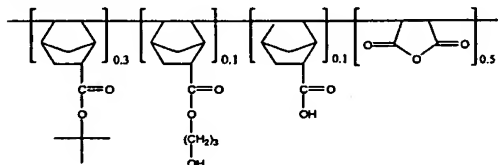
n is an integer from 1 to 5; and ~~w, x, y and z individually denote the mole ratio of each monomer, preferably with proviso that~~ w + x + y is 50mol%, and z is 50mol%.

23. (Currently Amended) The resist flow process according to claim 13, wherein said photoresist polymer is selected from the group consisting of ~~compounds of~~ at least one of the following Formulas 10 to 13:

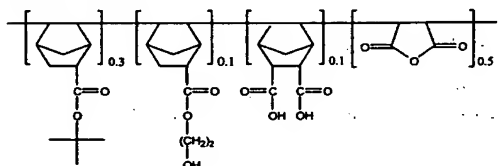
Formula 10



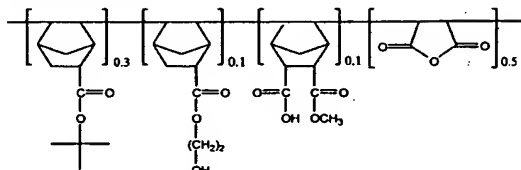
Formula 11



Formula 12



Formula 13



24. (Currently Amended) The resist flow process according to claim 13, wherein said additive is present in an amount ranging from 1 to 70 wt% by weight of the photoresist polymer.

25. (New) The resist flow process according to claim 16, comprising performing said resist flow process at a temperature in the range of from 120 to 190°C.

26. (New) The resist flow process according to claim 13, wherein the size of second photoresist pattern is smaller than the first photoresist pattern.

27. (New) The resist flow process according to claim 26, wherein said second photoresist pattern is shrunk by 75~ 50 % based on the size of the first photoresist pattern.